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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/753,833	01/05/2004	Tianbing Brian Teng	7293-88	6792

20575 7590 06/15/2005

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EXAMINER
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PHAM, TAMMY T

ART UNIT	PAPER NUMBER
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2675

DATE MAILED: 06/15/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/753,833

Applicant(s)

TENG ET AL

Examiner

Tammy Pham

Art Unit

2675

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 05 January 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-15 are rejected under 35 U.S.C. 102(e) as being anticipated by Chinthammit et al. (US Patent No: 6,867,753 B2).

As for claims 1, 6, 8-9, 11-13 and 15 Chinthammit teaches of a system, comprising an accelerometer to measure tilt and rotation in column 4, lines 28-35 “In one embodiment the inertial tracker includes three pairs of accelerometers. The basic concept is that the effect of the movement in any translation axis affects a pair of accelerometers in a corresponding axis to have the same direction with equal amount of acceleration. In the opposite way, the movement in orientation effects a pair of accelerometers in a corresponding axis to have the opposite direction with equal amount of acceleration. This basis allows the system to compute one translation axis and one orientation axis from a pair of accelerometers. Three pairs of accelerometers allow the system to obtain the linear accelerations and angular accelerations of the moving stage or the user's head in six degrees of freedom. In one embodiment angular accelerometer or angular rate gyroscope is used to measure the angular velocity.” The quote shows that that apparatus utilizes an accelerometer to measure the linear and angular acceleration, hence the tilt and rotation.

Chinthammit goes on to teach of a controller coupled to the accelerometer to distort image data responsive to the tilt and the rotation in column 2, lines 48-50 “The augmented reality imaging system 30 of Fig. 2 includes hybrid tracking to provide accurate augmented image registration relative to the real world background. The hybrid tracking includes optical tracking and inertial tracking implementing a higher tracking update rate.” The quote shows that the apparatus is able to utilize its tracking system to distort or provide a more accurate image based upon a “real world background,” which includes tilt and rotation data.

As for claims 2, 7, 10 and 14 Chinthammit teaches of the system of claim 1 where the accelerometer is a two dimensional accelerometer in column 10, lines 29-34 “A detector's 24-38 two-dimensional horizontal and vertical location within the raster scan provides a time based tracking capability which allows accurate registration of augmented imagery relative to the detectors 24-38.”

As for claim 3, Chinthammit teaches of the system of claim 1 where the controller calculates a horizontal angle responsive to the tilt and rotation as discussed above in column 4, lines 38-35.

As for claim 4, Chinthammit teaches of the system of claim 1 where the system projects the distorted image data as an undistorted projected image on a projection surface in column 7, lines 44-18 “The process of aligning a virtual image to a specific location in a real world background is referred to herein as augmented image registration, or simply, registration... There are two principle sources of registration error: static and dynamic. Static error is defined as an error that occurs while the user is stationary.” The quote shows that the apparatus is able to align or un-distort an image.

As for claim 5, Chinthammit teaches of a system, comprising position detecting means for detecting first and second positions and distortion means for distorting image data responsive to the first and second positions as discussed above in column 7, lines 44-48. For the apparatus to be able to convert a distorted image to an un-distort, the apparatus must be able to take in two sets of data, or data regardless one's first and second positions in order to compare and correct as needed.

### *Conclusion*

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Jouppi (US Application No: 2002/0063726 A1) is cited to teach of a presentation system that is able to utilizes projectors and cameras and an accelerometer in order to display video.

Zhang et al. (US Application No : 2004/0095317 A1) is cited to teach of a universal pointing device that is able to utilizes an accelerometer to project a pointer on a screen.

Rosenberg et al. (US Application No : 2002/0109668 A1) is cited to teach of a system that utilizes an accelerometer to order to modify the displayed objects as seen fit.

Williams et al. (US Application No : 2003/0234797 A1) is cited to teach of a viewing device that is able to determine the orientation of the displayed image.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tammy Pham whose telephone number is (571) 272-7773. The examiner can normally be reached on 8:00-5:30 (Mon-Fri).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sumati Lefkowitz can be reached on (571) 272-3638. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

TP

Tammy Pham  
June 8, 2005

  
SUMATI LEFKOWITZ  
SUPERVISORY PATENT EXAMINER